16.0 Scientific Abstract

The goal of immunotherapy is to stimulate the immune system by modification of tumor cells or expansion of lymphocytes which respond specifically to tumor antigens. In this study, we will apply techniques of direct gene transfer to enhance immune response against tumors in vivo. Patients with advanced cancer who have failed all effective therapy will be treated by injection of a DNA/liposome complex directly within the tumor. DNA encoding an HLA-B7 histocompatibility antigen and the neomycin-resistant gene in a eukaryotic expression vector will be used, and a safe and effective dose to introduce this recombinant gene in HLA-$B7^-$ patients will be established. HLA-B7 expression will be confirmed in vivo, and the immune response stimulated by the expression of this antigen will be characterized. We will also determine whether this treatment facilitates tumor regression alone or in combination with other treatment modalities. This genetransfer approach will be analyzed for its efficacy as an anti-cancer treatment. Finally, these studies will allow the development of other approaches, using different recombinant genes or in combination with cytokines or adoptive T cell therapy, to augment tumor immunity. This method to treat malignancy may provide the basis to establish the safety on this general approach, which could be extended to treat a variety of other human diseases.